AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1   1.   (Currently amended) A method for performing ion mobility
2 spectrometry, comprising:
3   receiving a sample for analysis;
4   ionizing the sample;
5   injecting the ionized sample into a laminar gas flow;
6   wherein an electric field crosses the laminar gas flow so that the laminar
7 gas flow and the electric field <u>are not parallel to each other, and wherein the</u>
8 <u>laminar gas flow and the electric field </u>combine to spatially separate ions of the
9 sample based on ion mobility ~~and~~ so that the spatially separated ions contact
10 different elements of an electrometer array;
11   reading an output of the electrometer array; and
12   analyzing the output to determine a chemical composition of the sample.

1   2.   (Original) The method of claim 1, wherein receiving the sample
2 for analysis involves:
3   receiving a plurality of particles for analysis; and
4   converting the plurality of particles into the gas-phase.

1   3.   (Original) The method of claim 2, wherein converting the plurality
2 of particles into the gas-phase involves desorbing at least one analyte from the
3 plurality of particles.

1   4.   (Original) The method of claim 2, wherein converting the plurality

2   of particles into the gas-phase involves ablating at least one analyte from the

3   plurality of particles.

1   5.   (Canceled).

1   6.   (Original) The method of claim 2, further comprising analyzing the

2   sample with a first ion mobility spectrometer and a second ion mobility

3   spectrometer in tandem, wherein:

4   the first ion mobility spectrometer receives ions that have been desorbed

5   from the at least one analyte; and

6   the second ion mobility spectrometer receives ions that have been ablated

7   from the at least one analyte;

8   whereby the first ion mobility spectrometer analyzes volatile compounds

9   in the sample and the second ion mobility spectrometer analyzes non-volatile

10   compounds in the sample.

1   7.   (Currently amended) The method of claim 1, wherein reading the

2   output of the electrometer array involves:

3   resetting the electrometer array before the ionized sample reaches the

4   electrometer array so that a charge on each element of the electrometer array is

5   substantially zero;

6   accumulating charge on elements of the electrometer array for a given

7   time; and

8   reading the charge on each element of the electrometer array.

1   8.   (Original) The method of claim 1, wherein the sample is in a

2   particle phase, and wherein the laminar gas flow and the electric field are adjusted

3   to separate particle mobilities.

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1   9.   (Original) The method of claim 1, wherein performing ion mobility

2 spectrometry involves using a separate electrometer array for positive ions and a

3 separate electrometer array for negative ions.

1   10.   (Original) The method of claim 1, wherein the electric field runs

2 substantially perpendicular to the direction of the laminar gas flow.

1   11.   (Currently amended) An apparatus for performing ion mobility

2 spectrometry, comprising:

3   ~~a receiving mechanism configured to receive a sample for analysis;~~

4   an ionizing mechanism configured to ionize [[the]]a sample;

5   an injecting mechanism configured to inject the ionized sample into a

6 laminar gas flow;

7   <u>an electric-field applying mechanism configured to apply</u> ~~wherein~~ an

8 electric field <u>to the ionized sample, wherein the electric field</u> ~~crosses~~<u>is not parallel

9 to</u> the laminar gas flow so that the laminar gas flow and the electric field combine

10 to spatially separate ions of the sample based on ion mobility and so that the

11 spatially separated ions contact different elements of an electrometer array;

12   a reading mechanism configured to read an output of the electrometer

13 array; and

14   an analyzing mechanism configured to analyze the output to determine a

15 chemical composition of the sample.

1   12.   (Currently amended) The apparatus of claim 11, ~~wherein the~~

2 <u>further comprising a</u> receiving mechanism configured to:

3   receive a plurality of particles for analysis; and

4   convert the plurality of particles into the gas-phase.

1   13.   (Currently amended) The apparatus of claim 12, wherein
2 ~~converting the plurality of particles into the gas-phase involves desorbing~~ the
3 receiving mechanism is configured to desorb at least one analyte from the
4 plurality of particles.

1   14.   (Currently amended) The apparatus of claim 12, wherein
2 ~~converting the plurality of particles into the gas-phase involves ablating~~ the
3 receiving mechanism is configured to ablate at least one analyte from the plurality
4 of particles.

1   15.   (Canceled).

1   16.   (Original) The apparatus of claim 12, further comprising a first ion
2 mobility spectrometer and a second ion mobility spectrometer in tandem,
3 wherein:
4   the first ion mobility spectrometer receives ions that have been desorbed
5 from the at least one analyte; and
6   the second ion mobility spectrometer receives ions that have been ablated
7 from the at least one analyte;
8   whereby the first ion mobility spectrometer analyzes volatile compounds
9 in the sample and the second ion mobility spectrometer analyzes non-volatile
10 compounds in the sample.

1   17.   (Original) The apparatus of claim 11, wherein the reading
2 mechanism is further configured to read the output of the electrometer array by:
3   resetting the electrometer array so that a charge on each element of the
4 electrometer array is substantially zero;
5   accumulating charge on elements of the electrometer array for a given
6 time; and

5

7   reading the charge on each element of the electrometer array.

1   18.   (Currently amended) The apparatus of claim 11, <u>further</u>

2 <u>comprising an adjusting mechanism configured to adjust the laminar gas flow and</u>

3 <u>the electric field to separate particle mobilities in the sample which is in a particle</u>

4 <u>phase.</u> ~~wherein the sample is in a particle phase, and wherein the laminar gas flow~~

5 ~~and the electric field are adjusted to separate particle mobilities.~~

1   19.   (Currently amended) The apparatus of claim 11, <u>further</u>

2 <u>comprising a first electrometer array to detect positive ions and a second</u>

3 <u>electrometer array to detect negative ions.</u> ~~wherein performing ion mobility~~

4 ~~spectrometry involves using a separate electrometer array for positive ions and a~~

5 ~~separate electrometer array for negative ions.~~

1   20.   (Canceled).

1   21.   (Currently amended) A means for performing ion mobility

2 spectrometry, comprising:

3   ~~a receiving means for receiving a sample for analysis;~~

4   <u>an ionizing means for ionizing a sample;</u>

5   an injecting means for injecting the ionized sample into a laminar gas

6 flow;

7   ~~wherein~~ <u>an applying means for applying</u> an electric field <u>to the ionized</u>

8 <u>sample, wherein the electric field</u> ~~crosses~~ <u>runs substantially perpendicular to</u> the

9 <u>direction of the</u> laminar gas flow so that the laminar gas flow and the electric field

10 combine to spatially separate ions of the sample based on ion mobility and so that

11 the spatially separated ions contact different elements of an electrometer array;

12   a reading means for reading an output of the electrometer array; and

| 13 | an analyzing means for analyzing the output to determine a chemical |
| 14 | composition of the sample. |

1	22. (Currently amended) The means of claim 21, <u>further comprising a</u>
2	<u>receiving means,</u> wherein the receiving means:
3	receives a plurality of particles for analysis; and
4	converts the plurality of particles into the gas-phase.

| 1 | 23. (Original) The means of claim 22, further comprising a desorbing |
| 2 | means for desorbing at least one analyte from the plurality of particles. |

| 1 | 24. (Original) The means of claim 22, further comprising an ablating |
| 2 | means for ablating at least one analyte from the plurality of particles. |

| 1 | 25. (Canceled). |

1	26. (Original) The means of claim 22, further comprising a first ion
2	mobility spectrometer means and a second ion mobility spectrometer means in
3	tandem, wherein:
4	the first ion mobility spectrometer means receives ions that have been
5	desorbed from the at least one analyte; and
6	the second ion mobility spectrometer means receives ions that have been
7	ablated from the at least one analyte;
8	whereby the first ion mobility spectrometer means analyzes volatile
9	compounds in the sample and the second ion mobility spectrometer means
10	analyzes non-volatile compounds in the sample.

| 1 | 27. (Original) The means of claim 21, wherein the reading means |
| 2 | reads the output of the electrometer array by: |

3   resetting the electrometer array so that a charge on each element of the

4   electrometer array is substantially zero;

5   accumulating charge on elements of the electrometer array for a given

6   time; and

7   reading the charge on each element of the electrometer array.

1   28.   (Currently amended) The means of claim 21, <u>further comprising an</u>

2   <u>adjusting means for adjusting the laminar gas flow and the electric field to</u>

3   <u>separate particle mobilities in the sample which is in a particle phase.</u> ~~wherein the~~

4   ~~sample is in a particle phase, and wherein the laminar gas flow and the electric~~

5   ~~field are adjusted to separate particle mobilities.~~

1   29.   (Currently amended) The means of claim 21, <u>further comprising a</u>

2   <u>first electrometer array to detect positive ions and a second electrometer array to</u>

3   <u>detect negative ions.</u> ~~wherein performing ion mobility spectrometry involves~~

4   ~~using a separate electrometer array for positive ions and a separate electrometer~~

5   ~~array for negative ions.~~

1   30.   (Canceled).